

## Technology Development Group

## Available Technologies

### **Request Information**

## Method to Enrich for Cells Transduced with Chimeric Antigen Receptors

Tech ID: 25777 / UC Case 2016-255-0

#### SUMMARY

Researchers at UCLA have developed a method to expand chimeric antigen receptor-transduced T cells for use in immunotherapies.

#### BACKGROUND

Chimeric Antigen Receptors (CAR) T cells are promising therapeutics for the treatment of cancer and are also being considered for the treatment of infectious diseases. However, adoptive transfer and clinical manufacturing of CAR T cells is a time-consuming, complex, and labor-intensive process. A key issue with CAR-engineered T cell therapies (and cell therapies, in general) is the low transduction efficiency of T cells with CAR-expressing constructs. For instance, peripheral blood T cells that are often the target of CAR gene therapy typically have transduction efficiencies less than 50%, often 10-20%. As a result, production of sufficient cell numbers for therapy requires an increase in the scale of patient cell collection as well as more extensive ex vivo T-cell selection and expansion. This contributes to CAR T cell therapies high manufacturing costs. Thus, there is a clear need for technologies that can optimize the transduction efficiency and manufacturing of CAR T cells.

#### **INNOVATION**

Dr. Otto Yang and colleagues in the Department of Microbiology, Immunology & Molecular Genetics at UCLA have developed a method of specifically expanding CAR-transduced T cells, without inducing expansion of the total T cell population. This method was developed to stimulate proliferation of the CAR-transduced T cells but not the non-transduced T cells, leading to selective expansion of CAR-transduced T cells and therefore rapid enrichment.

#### **APPLICATIONS**

CAR T cell therapies

#### **ADVANTAGES**

- Selective stimulation of CAR-transduced T cells but not non-transduced T cells
- Selective expansion of CAR-transduced T cells
- Expansion of selectively transduced cells to get the same number of transduced cells without expanding non-transduced cells
- Rapid enrichment of CAR-transduced T cells

### STATE OF DEVELOPMENT

Dr. Otto Yang and colleagues have shown proof-of-concept experiments demonstrating rapid enrichment of CAR-transduced cells despite a relatively low starting transduction rate.

#### PATENT STATUS

Country	Туре	Number	Dated	Case
United States Of America	Issued Patent	11,034,933	06/15/2021	2016-255

## Contact Our Team



## CONTACT

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#### INVENTORS

Yang, Otto O.

#### **OTHER INFORMATION**

**KEYWORDS** Chimeric Antigen Receptors, artificial T cell receptors, gene therapy, TCR gene therapies, oncology, cancer, CAR, blood

#### **CATEGORIZED AS**

- Medical
  - ▶ Disease: Cancer
  - ► Disease: Infectious
  - Diseases
  - ► Therapeutics

RELATED CASES

2016-255-0

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Endogenous Human Protein Nanoparticle-Based Immune-Focusing Antiviral Vaccine
- Covalent Bi-Specific Monoclonal Antibodies that Expand Selective T Cell Subsets

# Gateway to Innovation, Research and Entrepreneurship

### UCLA Technology Development Group

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